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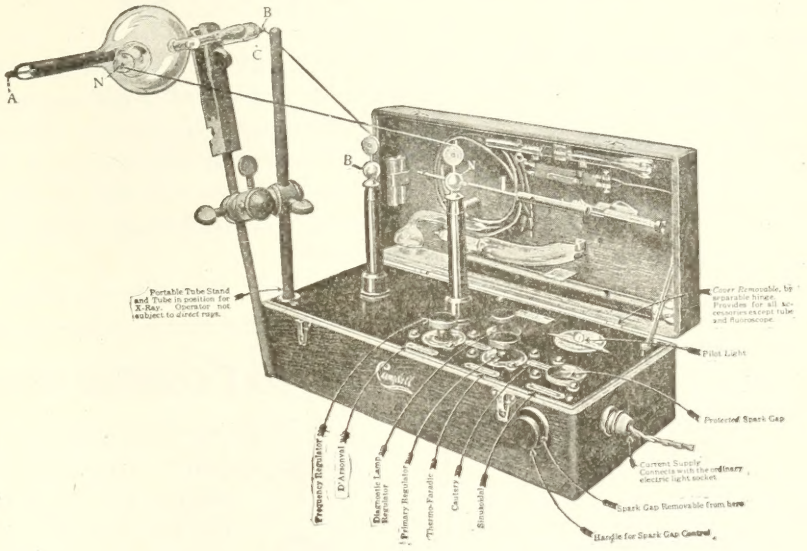

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CHARLES S. BRIGGS, A.M., M.D., Editor.
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Original Communications

SOME FACTS CONCERNING THE PERIODICITY OF INEBRIETY.

By T. D. Crothers, M. D.,
Superintendent Walnut Lodge Hospital, Hartford, Conn.

The alternations of exhilaration and depression in the activities of the brain and nervous system are considered mere ebbs and flows of nerve energies of little or no physiological interest.

When these alternations appear in diseases and degenerations of the brain and nervous system they come into prominence as distinct forces, following uniform laws of cause and effect. The neuralgic migraines, the epilepsies some of the insanities and a great variety of nerve and functional activities are familiar illustrations.

The drink neurotic who abstains for distinct periods and then suddenly breaks out with insane cravings for spirits which after a time die away, only to be followed by another outbreak of a similar character, is an example of these unknown cycle degenerations.

At one time it is delirium, intense, over-powering and irresistible and then a period of quiet rest, sanity and complete control comes on. At one time it is the rigid moralist, strict abstainer and

sound, strong man. At another it is the excessive drinker, immoral, dishonest, without character and reckless of his acts and conduct.

To the unreasoning public and the foolish theorist, this is simply vice, an outbreak of the animal instincts and the beast part of the man. The most delusive and stupid thories have become a great literature in explanations of these two widely differing conditions. The statement that it is simply a gathering and breaking of morbid energies and activities of the brain and nervous functions, governed by distinct physical laws, is not recognized to any great extent.

Some facts common to these conditions will show how thoroughly they are physical and subject to laws which are to be studied. In all probability fully sixty per cent of all inebriates and alcoholics display this periodicity of symptoms.

In the distinct periodical drinker the free intervals are very often definite as to time, varying from one week to several years, and in many cases breaking out at intervals that are as fixed and unvarying as the movement of the stars. In others this interval of freedom from the drink craze is variable and in some cases depends on certain conditions which may be often forecasted, controlled and prevented. In others the conditions are unknown and the laws that govern their culmination and explosion are not studied.

There is a small class of persons in which the drink impulse appears as mysteriously as the flash of electricity in a cloudless sky. No premonition or hint of the coming attack. Often it disappears in the same mysterious way.

An attempt at classification indicates several groups which seem to have fairly constant symptoms. Thus in many cases they may be called the insane impulsive periodic inebriates. The free interval is an unknown condition and the return of the drink craze is abrupt and unexpected. The man will drink and become crazed at the most inopportune time, on the eve of marriage or some great social, political or literary triumph, or some business success, or on a public occasion or at a funeral, where this condition is most disastrous for his future.

A very poor young man with a large family, who had been sober for some weeks, was informed that his uncle had left him an immense sum of money, contingent on his remaining sober for one year. Immediately on hearing the news he drank to great excess for weeks.

The reaction when this obsession disappears and the sudden realization of the losses, precipitates suicide. The remorse is so intense that death is preferred. Others when the drink craze passes off, show the most intense anxiety to explain and minimize the losses which they have suffered from, and also make earnest efforts to convince their friends that this will never occur again.

The memory is usually vague and events of the past are uncertain and cloudy. In others the memory is clear and intact. The reason and judgment seem to have been suddenly arrested and on recovery display unusual activity to promote total abstinence in himself and friends. The extreme delirious excitement to help others and to show the dangers from alcohol and promote the cause of total abstinence, so prominent in revival meetings is not unfrequently the after effect of previous alcoholic excesses. Sometimes this is manifested in egotism and childish appeals to credulity, away beyond the bounds of rational judgment and sense.

Another class of these periodics exhibit distinct premonitory symptoms of the drink craze. Curiously enough, they are unconscious of these premonitions. The more common of these symptoms are degrees of unsual excitement or depression, great business energy or unusual apathy, perhaps exaltation of the emotions or depressive states with fears of poverty, and sudden death. There is a great variety of these symptoms which take on almost every form of abnormality, all leading up to the toxic use of spirits, usually to stupor, and this period is marked by amnesias and delusions that are peculiar to the person.

Sometimes these premonitory symptoms are apparent in hallucinations of sight and hearing or sensory delusions in different parts of the body. At other times there are deliriums of intrigue and low cunning and egotistic duplicities and prevarications, foreign to their previous character.

When spirits are used up to a certain point, all these disappear, generally after the first intoxication. Another class of periodics will have premonitory symptoms of childish reasoning and credulities of the presence of some disease, which will eventually suggest spirits as a remedy. They are often very strong persons, in apparent good health, and seem oblivious to any past experience. Then suddenly they will have food and health delusions, with fears sending them to the physician, who will fail to find anything to sustain their own conceptions of the case.

An example was that of a very prominent lawyer who counselled with many physicians, complaining of most obscure and complex symptoms. Then suddenly he drank to great excess, and after a few days recovered without any conception of his previous alarm.

Another example was that of a noted banker, who once or twice a year exhibited extraordinary suspicion of persons with whom he was associated, and displayed unusual energy in trying to verify accounts and determine the exact amount in the vaults, examining books and vouchers with the idea of detecting some faults.

These premonitory symptoms are exceedingly varied and in some degree appear in every instance. The exact recurrence of the drink cycle, irrespective of other conditions and surroundings, is evident in many persons. The time in months, days and hours can be traced and the occurrence of the drink paroxysm is exact and literal.

It is a question whether the persons always understand that at such intervals they must drink spirits to excess. When they do, there is evidently a preparation for this event, and a degree of expectancy which makes it more exact and positive.

A number of cases have been noted where this period was a certain number of days and hours, rarely varying, and never more than a day and returning under the most extraordinary circumstances.

Examples like the following are not infrequent. A man in previous good health, conducting business in the usual way, will suddenly stop, disappear and in a short time be found very much

intoxicated. Professional men in the midst of most important duties will abruptly give the most frivolous excuses for a change in the work, and become stupid from drink in a short time.

In some instances persons show unusual anxiety to help others, take up some reform work with great energy, ending in a drink attack. Probably this is done in an effort to break up the imperative conception of the oncoming drink craze. The memory during this premonitory period, and even up to the close of the peroxysm is subject to wide variations. In some instances it is entirely a blank and no efforts to explain the reasons and the causes are made. In others there is a half consciousness of the condition, which is never clear and connected.

Very interesting questions have centered about the consciousness and capacity to realize this condition, but are still unsettled. The heredity of these cases is always very prominent.

Probably over sixty per cent have a neurotic heredity in which insanity, epilepsy, inebriety, idiocy and various other diseases are traceable in the parents and grandparents, pointing to an unstable neurotic condition that is favorable to the outbreak of this distinct form of neuroses.

Why it should take on the form of a craze for the narcotism of alcohol is not clear. In all probability this may be dependent on the errors of environment, nutrition and faulty mental training. Many of the persons studied show degenerations, perversions, both acquired and inherited. Others indicate a spasmodic tendency to gather and break like a storm, resembling epilepsy and often merging into it.

These periodicites seldom appear until after twenty years of age, and often subside or merge into some serious degeneration before fifty. At first the length of the paroxysm is brief, confined to a few hours. Later it increases, extending over two or three weeks, then finally becoming shorter, and less intense.

The narcotism of spirits develops some other symptoms or conditions which obscure and change the former. There is intense loathing and repugnance for the odor and effects of spirits and other drugs are taken. A period of a few years of periodic

drinking, often merges into morphinism or the use of some other drug.

The periodic drinker, based on a neurotic heredity, frequently merges into epilepsy, paresis and forms of insanity, marked by exaltation and depression. The drink craze not unfrequently dies away, but obsessions remain, sometimes concentrating on widely differing objects. Thus a periodic drinker developed a craze for building houses, which extended over many years, each year building a new house for himself, with different designs and rooms.

Another man developed a craze for travel. Every few months he would stop business and go away, pursuing an aimless journey. Another man had a craze for dressing. Another one goes into politics, another becomes a reformer and so on through an almost infinite list of activities.

The original periodic desire for spirits remains, only it takes on a different form. Oftentimes these cycles appear in epidemic delusions, literally most credulous faiths in unreal theories; faith in commercial and social enterprises, credulous expectations of impossibilities, or on the other hand waves of pessimism, doubt and confusional conceptions of things.

A number of persons have been noted, who began in early life to drink at intervals and a few years afterwards gave up spirits, and developed into paranoiacs, defectives, eccentrics, and men very sharply unbalanced at times. In political circles, these periodic drinkers who are reformed appear very prominent.

The impulsiveness of conduct, sentiment and reason so prominent in many persons, are all phases of these mysterious cycles of brain activity. Spirits, either as a medicine or as a beverage are exceedingly dangerous for such persons. It is often a question of great doubt whether any narcotics should be used.

They are all very susceptible to the alternations of drug effects. It is evident that a great many drug and spirit takers have been developed from this class of spasmodic neurotics by thoughtless medication.

Masked epilepsies both in men and women are of the same class and all indicate great instability and positive degenerations of

certain brain centers, and are all suspicious of the possibliities of grave neuroses of some kind. The alcoholic who has used spirits to the point of poisoning and has all the marked symptoms of congestion, toxemias and general perversions, is amenable to treatment, with every prospect of restoration and cure.

If with this alcoholism there is a hereditary influence and neuroses, the use of spirits may be a symptom at first as well as a cause. If the use of spirits began with distinct free intervals, there is still further degeneration and still greater complexity in the prognosis as well as treatment.

The periodical return of the drink paroxysm should be treated successfully and can be broken up by a great variety of methods and means. The fact that one at intervals is possessed with the desire for drink is a very serious one and should not be treated lightly. The fact that one is liable to stop after the period is over, is no evidence of strength, but is decidedly suspicious of a very grave spasmodic disease that will terminate fatally. The fact that periodical drinking preceded a case of pneumonia, is very grave.

The mortality is increased and any form of treatment is more and more impotent. The fact of spasmodic disease in infancy predisposes to alcoholic periodicity, epilepsy and other neuroses that must be recognized in after treatment.

The gravity of the epileptic depends on their duration and persistency. The same thing occurs in the alcoholic paroxysm, only that there are conditions which may be broken up, and thus lessen or check the paroxysm.

A number of persons afflicted in this way come under my care at intervals with the distinct purpose of checking and breaking up the paroxysm which is expected to occur at about a certain time. This is done in institutional treatment. The hope is that the paroxysm will not return again, until the cycle is completed, and this occurs in most instances after short intervals of treatment extending over years.

Such persons should be taught the gravity of their condition and encouraged to seek help from the physician, on the first approach of the paroxysm, and in this way break up its return,

then become built up and restored so as to overcome the next onset.

Here is a field for practical physicians of the utmost importance, with possibilities of restoration, beyond any present conceptions.

PELLAGRA—ITS HISTORY, SYMPTOMS, CAUSES, TREATMENT, PREVENTION.

By S. E. Cox, M. D., Nashville, Tenn.

In an article on pellagra prepared by Past Assistant Surgeon C. H. Lavinder in 1912, it is stated that pellagra has been known in Spain since 1735. The disease was first described by G. Casal, of Ovideo, who, observing the disease among the Austrian peasants and finding nothing on the subject in medical literature, called it *mal de la rosa.* He regarded it as a kind of leprosy.

It seems to have appeared in Italy about 1750, but was first scribed there in 1771, and Frapolli, of Milan, first applied the name of pellagra to the disease. Here, as well as in Spain, the disease was described under several names.

The disease appeared in France and Roumania early in the nineteenth century. Since then it has made its appearance in upper Egypt, Asia Minor, Austria, Serbia, Bulgaria, India, Africa, Barbadoes, Mexico, South America and the United States.

The disease has been a veritable scourge to certain parts of Europe. It has been stated by Triller that there were 30,000 pellagrins in Roumania in 1906, and in 1899 there were nearly 73,00 sick with the disease in Italy. Tuczek states that in 1884 ther were 10,000 pellagrins in Italian hospitals and insane asylums. He also says that about 10 per cent of the pellagrins in Italy are mentally affected. There were said to be in 1907 about 100,000 pellagrins in Italy and upward of 50,000 in Roumania.

The United States apparently for many years remained singularly free of this malady. The general consensus of opinion among medical writers had always been that pellagra did not occur in this country, and among the American medical profession its features were, up to a short time ago, almost universally unknown.

Sporadic cases were reported by Gray, of New York, and Tyler, of Massachusetts, as early as 1864. Sherwell, of Brooklyn, N. Y., reported a case in an Italian sailor in 1883, and also another case in 1902. Bemis is reported to have diagnosed a case in New Orleans in 1889, and a case is said to have occurred in North

Carolina the same year (Wood and Bellamy). Harris, of Atlanta, reported a case in 1902. An epidemic of the disease occurred at the Mount Vernon (Ala.) asylum for negroes in 1896. These cases were studied by Searcy, McCafferty, Bondurant, and Dyer, and the outbreak was reported by Searcy in 1907. During the same year the diagnosis of pellagra was independently made by Dr. Babcock at the state insane asylum, Columbia, S. C., and a careful report made regarding the matter. Shortly after this Wood and Bellamy, of Wilmington, N. C., reported cases. The American disease was identified with Italian pellagra in 1908 independently by Watson and Babcock. In the spring and summer of this year pellagra began to be recognized quite generally through the Southern United States. In 1909 several outbreaks of the disease were recorded in various parts of the country, especially in insane asylums, and the malady was found existent in some of the Northern States, notably Illinois, and, later, Pennsylvania. Today the disease exists in practically all of the Southern States, and probably has invaded other States north of the Ohio River.

Dr. Lavinder states that an analysis of the various reports and a careful study of the development of pellagra in this country give good reason for the belief that the disease has, in all probability, existed in this country for many years, just how many it is difficult to say; perhaps forty or fifty, possibly longer.

APPEARANCE IN TENNESSEE.

It is believed the disease first made its appearance in Tennessee, here in Nashville. Dr. J. M. King, of this city, was the first to recognize pellagra here. During the year 1908, Dr. King diagnosed a case of the disease among about 150 children of the Baptist orphanage of this city. There occurred in this institution seventeen cases. Two of these cases proved fatal and the remainder recovered. Since then the disease has been recognized in practically every county in the State.

Last year there were reported to the State Board of Health a total of 1,479 cases of pellagra by the various local boards of

health in Tennessee. There have been reported 860 cases up to July 1 for the present year.

Total cases and deaths of pellagra reported for Davidson County (Nashville included) since the disease has been recognized here is 466 cases and 106 deaths. Deducting the deaths, there should be 360 cases of the disease here in our midst, provided none has recovered or moved away.

Since it was reported to the county court at its July session that the estimated number of pellagra cases was certainly not less than 2,000 cases for this county, and the most of it in the city, there has been quite a bit of discussion on the subject.

In reviewing the above reported cases it does seem that either the "picture" has been most elaborately overdrawn as to its prevalence or the physicians have failed to recognize and report the disease.

CAUSE OF PELLAGRA.

The relation between maize and pellagra was first pointed out by Marzari along about the year 1810, and in 1814 Balardini first suggested the theory that the disease might be due to spoiled maize; that is, maize which had undergone change by reason of the growth of fungi on the grain.

Up until a year or two ago, it has been the accepted opinion of most students of the disease that pellagra was an intoxication due to using as food Indian corn which, under the influence of unidentified parasitic growths has undergone certain changes with the production of one or more toxic substances of a chemical nature.

It has been pointed out that the disease generally occurs among the poorer classes of the rural population, who subsist largely or exclusively on corn, most usually prepared by boiling corn meal in salt water. Recent writers have about abandoned the theory that corn alone causes the disease.

A commission composed of Drs. Joseph Goldberger, C. H. Waring and David G. Willets, was appointed by the United States Public Health Service something like two or three years ago, to make pellagra investigations. The commission has done a

great deal of investigating with reference to the cause, communicability, and treatment of the disease.

The commission reports that it is their opinion that pellagra is dependent on some yet undetermined fault in a diet in which the animal or leguminous protein component is disproportionately small and the non-leguminous vegetable component disproportionately large.

In other words, it seems to be a faulty diet, namely, a one-sided or an unbalanced diet, which contains no (or very little) animal or legume constituents; but on the other hand an over-abundance of vegetable products that are rich in starch, sugar and poor in albuminoid substances.

To illustrate, the following diet: Bread (mostly corn bread), hominy, grist, mush or gruel (made from corn meal), syrups, molasses and fat meat. If this diet is persistently eaten, day in and day out, for a long time, it will likely (according to the commission's observations) produce pellagra.

This would be a one-sided or an unbalanced diet. This diet is one that is eaten a great deal by the poor, and particularly during the winter months. It seems that the poor is the home of pellagra. It is among the poor where the disease is met most frequently. However, those of the better class do frequently have the disease. But we are told by the commission that it is usually of that type of persons that have eccentric peculiarities and will not eat a good, rich, mixed, well-balanced and varied diet, but, on the other hand, live chiefly on starchy foods and sweets.

It seems from the commission's report that pellagra is either developed by a starvation of the tissues of the body, by an insufficient amount of the albuminoid constituents contained largely in animal foods, or it is a poison substance produced by an over-abundance of starchy foods and sweets. Anyway, we are told, it is just this kind of diet that is associated with pellagra victims.

QUESTION OF COMMUNICABILITY.

Under the direction of the pellagra commission Drs. C. H. Lavinder and Edward Francis made a comprehensive series of

inoculations in the monkey. Although every kind of tissue, secretion and excretion from a number of grave and fatal cases of pellagra was obtained, and inoculated in every conceivable way into over a hundred rhesus monkeys, the disease was not reproduced.

It has been pointed out by the commission that in a large public institution in Alabama for the insane, wherein 418 inmates were confined, during one year thirty-two, or 7.65 per cent, developed pellagra. Of the employes of this institution, 293 were in more or less intimate association with pellagrins and have lived in substantially the same or in identical environment as the inmates for the same length of time. If pellagra had developed among these employes at the same rate as it did among the inmates, then twenty-two of them should have had the disease. As a matter of fact, not a single case occurred among these employes. They further point out that in insane asylums where pellagra frequently develops they have yet to find a case among the employes.

Among the investigations of the commission it is stated as follows: the studies at the orphanage at Jackson show that on July 1, 1914, of 211 orphans, sixty-eight, or 32 per cent, had pellagra.

The distribution of these cases with respect to age developed the remarkable fact that practically all of the cases were in children between the ages of six and twelve years, of whom in consequence over 52 per cent were afflicted. In the group of twenty-five children under six years of age there were two cases, and in the group of sixty-six children over twelve years of age there was but one case. In as much as all live under identical environmental conditions, the remarkable exemption of the group of younger and that of the older children is no more comprehensive on the basis of an infection than is the absolute immunity of the asylum employes.

A minute investigation has been made at both institutions of all conceivable factors that might possibly explain the striking exemption of the groups indicated. The only constant difference discoverable relates exclusively to the dietary. At both institutions those of the exempt group or groups were found to subsist on a better diet than those of the affected groups. In the diet of those developing pellagra there was noted a disproportionately

small amount of meat or other animal protein food, and consequently the vegetable food component, in which corn and syrup were prominent and legumes relatively inconspicuous elements, forms a disproportionately large part of the ration. Although other than this gross defect, no fault in the diet is appreciable, the evidence clearly incriminates it as the cause of the pellagra at these institutions.

The careful study and exhaustive investigation of pellagra have led the commission to conclude that pellagra is not a communicable (neither infectious nor contagious) disease, but that it is essentially of dietary origin.

SYMPTOMS OF THE DISEASE.

Pellagra is said to appear under many forms, and to run an acute or a slow, chronic course. In the early stages there is a feeling of weakness, dizziness, headache and burning sensation. The tongue is coated and associated with loss of appetite and gastro-intestinal disturbances.

An examination of the mouth will often show vesiculation or even superficial ulceration. The temperature is usually normal, although there may be a slight evening rise. Intelligence, even at an early period, is often affected, and there is mild mental weakness with depression of spirits.

Along with these symptoms the characteristic cutaneous eruption, which most usually occurs in the early springtime, appears on those portions most exposed to the heat of the sun, as the back of the hands, the face and neck, in the form of erythematous patches of a dark brown or livid red, which frequently resembles a "sunburn." The skin is swollen and burns and itches. Small blisters may form and pigmentation develop. Toward fall and winter there is some desquamation, and the erythema disappears. The eruption most usually recurs again in the spring, and may follow this course for a number of years, when the skin on which the erythema occurs becomes dark olive brown and desquamates in thick flakes. In the course of time the patient grows weak and becomes much emaciated. Paralysis and disorders of the eyes are mentioned as frequent. The cutaneous eruption may

gradually extend over the body, the skin becomes bluish-red or bronzed in color, the finger joints are contracted, a sensation of cold and formication is complained of. Mental disturbances may occur, such as insanity, delirium, stupor, melancholia, etc. Acute maniacal spells may occur, with homicidal and suicidal impulses. Suicide by drowning is especially noted among the pellagrous insane. In the terminal stage the symptoms become aggravated. There is an increasing marasmus and a lack of resistance against intercurrent diseases. The patient may die from a heart lesion, or septicemia following bed sores may close the scene. The disease may run a long course, from five to fifteen or more years.

Apparent recovery from the disease is likely to be followed by a recrudescence, sooner or later, and all patients should remain uuder medical supervision for a long period of time.

MORTALITY RATE.

Pellagra in America is a serious disease. The disease here has been marked by an intensity not seen in Italy. The mortality rate in the United States is probably diminishing. It still remains high, however, and doubtless exceeds twenty-five per cent. The opinion is almost uanimous that early cases offer the most hopeful results from treatment. In cases where the diagnosis has been made early and the treatment carried out in accordance with the commission's recommendations it is highly probable that the death rate will be much reduced.

RECOMMENDED TREATMENT.

The treatment for pellagra recommended in the public health reports, January 15, 1915,, by the commission in charge of pellagra investigations is excellent and is hereby quoted in full as follows: Diet—The experience of reliable observers has over and over again shown that we have no specific medicinal treatment for pellagra. At the same time, we find that even the earliest students of the disease make mention of the value of nutritious food. The early observers were led to feed their patients because they found that as a general thing the disease occurred then, as it does now, mainly in the poor and badly nourished. It was not

and is not a rare observation, however, to find individuals suffering from pellagra who, to all outward appearance, are perfectly well nourished. Such observations naturally enough gave rise to doubts and to skepticism as to any essential causative relation between under-nourishment and pellagra. Indeed, such observations justify the inference that pellagra is not a disease of malnutrition, provided that by under-nourishment or malnutrition we mean no more than is ordinarily understood as some degree of starvation. The comparatively recent studies that have definitely established beriberi as a "deficiency" disease of "under-nourishment" or starvation in a sense hardly dreamed of before, have given a new and added significance to the more recent studies of nutrition and have opened a practically virgin field to the student of epidemiology and therapy.

If we now consider pellagra as a fault of nutrition in this new special sense (that is, as in some way analogous to beriberi or scurvy), we at once get a new and more sympathetic tolerance for the reports of beneficial results not only from the use of "nourishing" food alone, but also from those reports of unusually favorable results following the administration of this, that or the other form of arsenic or other medicine. For on close inquiry it will be found that in those instances where there seems to be reason for believing that the favorable results claimed for this or that drug appear to have a substantial basis in fact, the credit claimed for the medicine alone must, to say the least, be shared by the modification in the diet that is invariably found to have been made. Recurrences in such instances are not rare and not hard to understand when one reflects that, having gotten well, the natural tendency is to go back to one's ordinary diet, and this usually the winter diet, to some of the characters of which we will again refer.

On the basis of the foregoing conclusions and in the light of the general considerations presented, we would recommend that as long as clinical evidences of pellagra are manifest, the patient should be given and urged to take an abundance of fresh milk, eggs, fresh lean meat, beans and peas (fresh or dried, not canned.)

We are not to be understood as saying that all cases will, or

can, in this or in any other way be saved. We fear that there will always be patients who, even in their first attacks, are and will be beyond hope of recovery.

Milk—Fresh milk alone, or in alternation with buttermilk, should be given freely. It is probably the most valuable single food, and adults should be urged to take not less than a pint and a half to two pints in twenty-four hours.

Eggs—Fresh eggs should be allowed freely. In addition to the milk and meat, an adult should take not less than four eggs a day. In certain of the severer forms it may be necessary to give the eggs in the form of albumen water, preferably with lemon or orange juice.

Meat—The meat should be fresh, lean meat. Whether all fresh meats are equally valuable in treatment we do not know; future studies will have to determine this. Our experience has been with beef alone. This may be served as scraped beef, as a roast or as a steak. Where mastication is painful, meat juice may be given instead. An adult should be urged to take at least a half pound of lean meat a day in addition to the milk, eggs and legumes. It may be necessary in some instances to work up gradually to the point where these quantities can be taken.

Legumes—We have been much impressed with the favorable results following the use of beans and peas alone. The beans and peas should be fresh or dried—not canned. A palatable pea or bean soup should be prepared, and should be given freely. In addition to or in alternation with the soup, the beans or peas should be served and eaten in any one of the other well-known forms.

In cases presenting marked gastro-intestinal symptoms, the diet of the patient may be limited to the foregoing articles. It may here be emphasized that intestinal disturbance is no contraindication to the full feeding.

In cases presenting only moderate or no gastro-intestinal symptoms there may be added in restricted amounts oatmeal, rice and barley as cereals, potatoes and onions as fresh vegetables, fresh or dried (not canned) fruits, and wheat or rye bread or biscuits.

As long as symptoms of pellagra are perceptible, we prefer to exclude all corn products, not that corn is not a wholesome and nutritious food, but because the occurrence of pellagra is commonly, though by no means exclusively, associated with the consumption of a diet in which corn forms a disproportionately large part. Similarly, a reduction in the amount of other carbohydraceous articles, such as the newer cereal breakfast foods, molasses, jams or starch, should, we think, be ordered, if on analysis of the patient's pellagrinous dietary some such articles or combination of articles appear to have formed a very conspicuous portion of the deit.

After all symptoms of pellagra have disappeared corn and other starchy foods in moderation and guarded with an abundance of milk, meat or legumes and preferably with all of these, may unhesitatingly be allowed.

Medication—As has already been sufficiently indicated, we have no medicine that has any specific value. Tonics may, of course, be used and may at times be helpful, but as a rule they are not needed. Special disturbing symptoms, particularly pain and insomnia, should be treated on general principles.

For the gastro-intestinal symptoms the best treatment is the diet. It is of vital importance to conserve the appetite. Anything that interferes with this must be regarded as injurious.

Rest and Nursing—We consider rest in both body and mind as important, if not essential, in all cases but particularly in the severer forms. The patient should be carefully guarded from fatigue and depressing influences of all kinds. Specific and detailed instructions should be given as to the diet. In the severer forms food should be ordered, like a medicine, to be given at stated intervals. This requires careful and intelligent nursing.

Climate—In the acute stage it is advantageous to protect the patient from the sun. A change of climate is valuable in proportion to the degree and character of the change of diet it involves. It is not essential, for the correction in the diet may equally well be made at home.

It can be seen and understood from the preceding information on pellagra that it is unnecessary for those suffering with

the disease to go to "isolation hospitals" for treatment. Inasmuch as the disease is not contagious or infectious, patients can be treated at their homes just as successfully as they can in hospitals. However, it is right and proper to care for the charity patients in some institution maintained by the public.

PREVENTIVE MEASURES.

Since our government authorities have made a careful study in connection with their investigations or pellagra, and along with their statement as to its cause—namely, of dietary origin, where there is an insufficient amount of albuminoids, and an overabundance of the carbohydrates, which are continuously eaten, as food.

In view of all these facts, is it not timely and proper for some one to point out and warn the public of the danger and show the importance of a well-balanced and varied diet?

It might be well to state that our food can be classified into two parts, namely, albuminoids and carbohydrates. The albuminoids come mostly from animal foods. However, the cereals contain a good bit of albuminous matter. Of the vegetable family, beans and peas contain more albuminous matter than cereals. This is why, when beans and peas are eaten freely, one does not require so much meat, etc. The remainder of the vegetables are very poor in albuminoids.

Roughly speaking, the albuminoids we eat make muscle, blood, nerves and vitality. The carbohydrates come chiefly from the various cereals, which are rich in starch. All vegetables contain more or less starch. Beans, peas and Irish potatoes are the richest in starch. Fruits, sugar and fats belong to the carbohydrate group. The carbohydrates that we eat are consumed in our bodies in making heat and storing up fat.

By referring to the tables that follow, the amount of albuminous matter and starch, etc., that the various "foodstuffs" contain can be seen:

COMPOSITION OF COW'S MILK.

	Per Cent.
Fat	4.04
Sugar	4.34
Proteids (albuminous matter)	4.17
Mineral matter	0.73
Total solids	13.28
Water	86.72
Total	100.00

COMPOSITION OF THE FOWLS EGG.

	Per Cent.	
	Yolk.	White.
Albuminous matter	16.0	20.4
Fat	30.7	
Mineral salts	1.3	1.6
Water	52.0	78.0
Total	100.00	100.0

CHIEF CONSTITUENTS OF VARIOUS ANIMAL FLESH.

		Per Cent. Albuminous.	
Animal Condition.	Water.	Matter.	Fat.
Steer, very fat	53.05	16.75	29.28
Steer, medium	72.03	20.96	5.41
Steer, lean	76.37	20.71	1.14
Calf, fat	72.31	18.88	7.41
Calf, lean	78.82	19.86	0.82
Sheep, fat	53.31	16.62	28.61
Sheep, lean	75.99	71.11	5.77
Pig, fat	47.40	14.54	37.34
Pig, lean	72.57	20.25	6.81
Hen, fat	70.06	18.49	9.34
Hen, lean	76.22	17.72	1.42

Goose, fat	38.02	15.91	45.59
Duck, wild	70.82	22.65	3.11
Pigeon	75.10	22.14	1.00
Salmon	64.29	21.60	12.72
Herring	74.64	14.55	9.03
Mackerel	71.20	19.36	8.08
Halibut	75.24	18.53	5.16
Carp	76.97	21.86	1.09
Perch	82.06	14.90	0.55
Bacon (American)	9.00	9.90	71.50
Bacon (Dutch)	12.00	14.50	63.50
Ham, ordinary	59.73	25.08	8.11
Smoked beef	47.68	27.10	15.35
Pork Sausage (Eng.)	51.20	11.42	26.55
Beef Sasuage(Eng.)	48.64	10.45	24.68

Starch—4.20, 10.52.

Animal foods in the natural state do not contain starch. Sausage is frequently adulterated with flour, bread crumbs or starch.

CHIEF CONSTITUENTS OF CEREALS AND VEGETABLES.

	Per cent.			
	Albuminous matter.	Starch.	Fat.	Water.
Wheat	18.	66.80	2.10	
Rye	12.50	64.65	2.25	
Barley	12.96	66.43	2.76	
Oats	14.39	60.59	5.50	
Indian corn	12.50	67.55	8.80	
Rice	7.55	88.65	0.80	
Irish potato	2.50	20.00	0.10	74.00
Beans (white)	25.50	55.70	2.80	9.90

The composition of peas is very similar to beans.

The standard amount for an adult man in health, taking active exercise in the open air, and restricted to a diet of bread, fresh meat and butter, with water and coffee for drink, is as follows:

QUANTITY REQUIRED OF FOOD PER DAY.

Meat (frsh, 453 grammes (about 15½ oz.)
Bread, 540 grammes (about 18½ oz.).
Butter or fat, 100 grammes (about 3½ oz.).
Water, 1,530 grammes (about 50 fluid oz.).

This represents the daily quantity of food and the proportions of its different kinds when composed of such materials as are most nutritious. For the continued maintenance of health and strength in a working condition, other articles, such as fresh vegetables, ,sugar, fruit, etc., should be mingled with the above in a variety of proportions.

No single class of these substances is sufficient to sustain life, but several must be supplied in due proportion to maintain the body in a healthy condition.

The following foodstuffs in class A and B, when properly mixed, might be termed an

ANTI-PELLAGRA DIET.

(Class A—Rich in Albuminoids.)

Beef, veal, lamb, mutton, pork, in fact, all kinds of fresh lean meats. Bacon, ham, poultry, eggs, all kinds of game, fish of all kinds, oysters, crabs, lobsters, sweet milk, buttermilk, cheese of all kinds, beans and peas (dried or fresh when in season, but not canned).

In winter months, when vegetables are out of season, eat dried beans and peas freely. They should be boiled slowly for a long time to be wholesome.

Wheaten bread or biscuit, rye bread, cornbread, rice, oatmeal, breakfast foods, hominy grits, tapioca, sago, corn, Irish potatoes, sweet potatoes, beets.

The following vegetables are not so rich in starch: Turnips, carrots, parsnips, tomatoes, fresh beans and peas, asparagus, squashes, cabbage, lettuce, turnip salad, mustard, spinach, celery, cucumbers, all kinds of pickles, sauerkraut—in fact all kinds of vegetables. Fruits of all kinds, either cooked or raw.

Pastries of all kinds, sugar, jam, preserves, syrups, etc.

Butter or fat; coffee, tea, etc

Of course, it is not intended for one to try to eat all the articles of food mentioned above at one time, but each meal must be selected from each class—namely Class A and Class B, to get a well mixed and balanced diet in albuminoids and starchy foods. If the individual is perfectly healthy (and not eccentric) and is able to supply his or herself with any kind of nourishment desired, the natural demands of the appetite afford the surest criterion for both the quantity and quality of food to be used. It is highly probable that the poor have been forced to procure their food largely from the Class B, on account of prices being lower. If it is difficult for the poor to procure a sufficient amount of wholesome meats, eggs and milk, then it would be wise to eat more dried beans and peas.

Our government commission on pellagra investigations sums it up as follows: To have a good, rich, mixed, well-balanced and varied diet "on the family table" is one thing; to eat it is quite another. The former is perhaps greatly to be desired, but the latter alone, we believe, will prevent pellagra.

Even if this diet should not prevent pellagra, it will certainly develop and produce a better specimen physically in those that observe it.

Under preventive measures is where our health officials should be active. In fact, the proper field for their work is protecting the public by the prevention of diseases. They should warn the public of the danger of a "faulty diet" and inform them the value of a proper one, and the relations that they bear to pellagra. They should disseminate literature among the people freely along these lines.

It is to be hoped they will not delay this simple method of prophylaxis any longer.

Selected Articles

THE DIAGNOSIS AND TREATMENT OF MECHANICAL OBSTRUCTION OF THE BOWELS.

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Mechanical obstruction of the bowels, the subject allotted to me in this symposium on ileus, presents etiologically and clinically such a number of variations that, in the short time at my disposal, I could do scarcely anything more than to touch upon the most salient points.

The term ileus does not stand for any special pathological condition, but for a group of symptoms: abdominal pain, vomiting of material containing bile and offensive, fecal-like matter, stoppage of the fecal stream and meteorism.

Mechanical obstruction of the intestines is due to actual obstruction by pressure from without or by some obstacle within the gut itself. We divide the mechanical ileus into two groups: obstruction by strangulation and obstruction by obturation.

In the first of these groups, strangulation ileus, the lumen of the bowel is closed by pressure from without, and at the same time its mesentery is so pressed upon that it is more or less destroyed or at least endangered. To this group belong all varieties of strangulated intestinal hernias, whether they be external or internal, volvulus, angulations of loops of bowels, bands arising from adhesive peritonitis. An adherent appendix and a Meckel's diverticulum may act in the same manner. Strangulation may also take place through slits in the mesentery, whether they be congenital anomalies or acquired thru a non-proper closure of the mesentery in resection of the intestine. Obstruction from strangulation is more common in the small than in the large intestine, due to the greater mobility of the ileum, its proximity to the various hernial orifices, its relations to the appendix and to

Meckel's diverticulum. Volvulus is more common in the sigmoid flexure than elsewhere, because of the frequency of chronic constipation in which the sigmoid is often distended, its mesentery lengthened and narrowed by traction, in which condition a sudden jar of the body, a violent muscular effort or a squeeze upon the abdomen may be sufficient to cause the upper loop to fall downward over the lower loop, thus starting a rotation, which, by further distention of the twisted gut, serves to render the twist more complete and incapable of spontaneous reduction. Gibson recites 121 cases of volvulus; 73 of those were in the colon and 58 of those 73 colonic cases were in the sigmoid flexure; 36 cases were in the small intestine. It should be remembered that volvulus of the small bowels is at times associated with and caused by hernia.

The second group, obstruction by obturation, is brought about in two ways. The lumen of the intestine may be closed by causes acting from within the gut itself, as, for instance, by tumors or cicatrices causing strictures; further by foreign bodies, whether swallowed or formed within the body, such as gallstones, enteroliths and fecal impaction. Intussusception may be included, altho here the phenomena have also the character of strangulation. And by causes acting from without, such as pressure of tumors or exudates upon the gut, whereby its lumen is closed.

Among tumors of the intestines causing obstruction carcinoma is by far the most common, usually involving the large intestine. In many cases the tumor is small and forms a narrow constricting ring about the gut. In others a massive palpable growth may be present. Of foreign bodies, causing obturation, gallstones are most frequently observed. They enter the bowels by ulceration thru the gall bladder or thru one of the ducts, and represent the highest degree of pathological changes in the gallstone cycle. The obturation is then in the small intestine in 95% of the cases.

The diagnosis of obstruction of the bowels, after the symptoms are well developed, presents no difficulties whatever. The difficulties consist in differentiating the other types of ileus from the mechanical forms, and, when the adynamic and dynamic varieties are excluded, in determining the site and the cause of the obstruction.

Careful consideration of the history, previous and present illness, usually helps us a great deal in distinguishing among the various types of ileus. The pain is more colicky in character in mechanical obstruction than in the adynamic forms. Peristalsis with borborygmi is always present in mechanical ileus as long as there is no infection; absent in the adynamic forms. In mechanical obstruction vomiting increases in frequency and force as time passes, whereas in reflex ileus it diminishes as the length of time from the onset increases. Fever is never present primarily in mechanical ileus, and on physical examination we may find areas of flatness, interspersed among areas of resonance. The point of greatest resistance in the abdomen is apt to be over the site of the obstruction. Change of position does not usually change the line of flatness in mechanical obstruction, whereas in paralytic ileus there may be marked movable areas of flatness, i.e., fluid contained in the dilated paralyzed bowels may roll so readily from one side of the abdomen to the other as to give the impression that the fluid is in the free peritoneal cavity, while in reality it is in the dilated paralyzed bowels, flowing from side to side on change of position.

Each form of mechanical obstruction has certainly fairly well marked characteristics of its own, altho combination forms also occur as in intussusception. In examining these cases particular attention must always be directed toward the intestines and the places where external hernias occur.

Strangulation is characterized by sudden onset of severe abdominal pain, followed at once by symptoms of shock, which is absent in obturation. In strangulation the pain is severe and continuous from the start; in obturation also severe but intermittent and paroxysmal, accompanied by forceful contraction of the afferent bowel in the effort to overcome the obstruction. The pain is more severe when the small bowel is strangulated than when colon alone is involved.

In strangulation the vomiting, with few exceptions, begins with the initial pain and shock, because we have here two pathological processes: a mechanical obstruction to the onward movement of the fecal stream, and a strangulation of the blood and nerve sup-

ply of the incarcerated loop. And it is this latter which causes the symptoms of shock and the initial vomiting. In obturation ileus it is regularly developed after a certain time and is due to regurgitation by overflow, as the quantity of the intestinal contents increases from the gastric, biliary secretion and from the intestinal juice (succus entericus) the overflow becomes greater and greater. The patient vomits first the contents of the stomach, then fluid containing bile and later assuming a fecal character. While the fecal character of the vomited material gives no information about the site of the obstruction, the time of its onset does. The higher the obstruction the earlier the so called fecal vomiting. In partial obstruction it occurs only late in the disease. In obturation of the sigmoid or rectum it may be absent or occur late. In strangulation painful and frequent hiccough is often an early symptom along with vomiting.

In strangulation the obstruction is usually complete at once. Rectal tenesmus may be an early symptom. The bowel below the strangulated loop empties itself and after that neither gas nor feces pass. This sudden stoppage of the fecal stream is seldom observed in obstructive ileus, where feces and gas may continue to be passed in small quantities for many days before the bowel is entirely occluded.

Tympanites which may be either local or general, according to the site of the obstruction, develops rapidly in strangulation and more gradually in obturation, where also peristalsis continues to be more or less marked. Localized tympany in the left lower quadrant of the abdomen, spreading upward and to the right, finally becoming general, suggests volvulus of the sigmoid flexure.

In obturation a tumor may be recognized. Tuberculous disease of the cecum and carcinoma of the cecum and hepatic flexure usually produces a tumor easily recognizable, and bimanual examination will reveal a pelvic tumor, uterine, ovarian or growing from the pelvis or from retroperitoneal structure. Rectal examination may discover a carcinoma, stricture of the rectum or fecal impaction if such be present.

And last but not least, there will, in obturation, be a history of chronic increasing partial obstruction. A history of progressive

constipation, perhaps alternated with diarrhea, in an elderly person, together with a mucous discharge tinged with blood from the bowel, will suggest carcinoma somewhere in the colon. A history of a foreign body swallowed or of gall bladder disease, etc., may be given. The history in strangulation, on the other hand, is this: a person in full health is suddenly seized with severe abdominal pain, vomiting, shock, which in the course of 12 to 24 hours may pass over to collapse.

In addition to these essential symptoms there will be progressive enfeeblement of the heart. In obturation the pulse may long remain of good quality. Temperature is seldom elevated as long as no complication has arisen. Leucocytosis is not common, but unfortunately sufficiently frequent so that it can not be used as a differential symptom between obstruction and infection.

Capillary cyanosis, offensive, projectile vomiting sometimes of a brownish-black color, a quick pulse and subnormal temperature are all signs of impending disaster.

Intestinal obstruction in infants and children is usually invagination with its sausage-shaped tumor and bloody stools. In men between 40 and 65 it is often due to volvulus of the sigmoid. Its onset is not violent and occurs four times oftener in the male than in the female. Strangulation by bands is rare in children, but very common in early adult life.

Usually the feature above indicated will enable one to differentiate between the various forms of ileus. However, there are cases less typical in which the diagnosis always is doubtful before the operation.

Gallstone obstruction of the neck of the gall gladder or the cystic or common ducts, acute pancreatitis and diaphragmatic pleurisy, should be thought of. The history and the temperature in these cases and the great tenderness under the costal arch will help to exclude them. Torsion of a tumor-pedicle, tabetic crisis, perforative peritonitis, appendicitis and acute renal lesions are perhaps easier excluded. Embolism of the mesenteric artery or thrombosis of the portal vein so much resemble acute mechanical obstruction of the bowels that a preoperative differential diagnosis can not be made.

In the management of these cases the first and the important thing to do is to wash out the stomach repeatedly, and the lower bowel should be emptied by an enema. Sometimes in giving this enema, one may be able to determine the situation of the obstruction by observing the amount of water that can be made to flow into the bowel. In obstruction below the descending colon the rectum will contain only from one pint to one quart. This test would, of course, have no significance in cases with rectal tenesmus. The patient should at once be moved to a hospital, where the obstruction can be relieved at the earliest moment. Morphin to relieve pain should not be given before the diagnosis or the approximate diagnosis has been made.

On account of the danger not only from gangrene, but also from peritonitis resulting from the passage of bacteria thru the damaged wall of the afferent bowel an immediate operation is urgent in all cases of strangulation and intussusceptions. In obstructive ileus the immediate operation is not so urgent, because the obstruction is seldom absolute in the beginning, and because a patient may go three to 15 days without bowel movement and still show no effect of intoxication; nevertheless, an early operation insures the best result. On the whole, delay in operating for intestinal obstruction is more fatal than delay in any other abdominal lesions except in gastro-intestinal perforation into the free peritoneal cavity.

A free gastric lavage should be done immediately before the operation to prevent fatal inhalation in case of vomiting at the beginning or at the close of the anesthesia. This precaution I mean should be taken whether general or local anesthesia is employed. Anesthesia should be carefully and sparingly given.

In intestinal obstruction one must be prepared to do very extensive resection of the bowels or the removal of a large tumor under unfavorable conditions. The incision should be made thru the median line or thru either the right or left rectus muscle over the point of the greatest tenderness, or over the tumor if such can be felt. If the place of strangulation is apparent the incision should be made over it. This should also apply to ileus, which continues after the reduction of an external hernia.

After the abdomen is opened one should follow a definite plan in locating the obstruction. It is best to first expose the sigmoid flexure, unless we see, at first sight, a collapsed coil of the small inestine in the field, when we will know that the obstruction is above the ilio-cecal valve, and we now pass the small bowel thru the fingers until the obstruction is reached. When the dilated fixed point is reached, great care should be exercised not to tear the intestine where its wall may be weakened by gangrene or ulceration. What further shall be done will depend upon the individual case.

The procedure here outlined can not always be followed. When the case is seen late in the disease and complete ileus has existed for days, and there are signs of impending danger, the most important point is the speedy relief of the distended afferent bowel with the least operative work possible, and this is accomplished by establishing an artificial anus under local anesthesia with little additional risk to the patient.

When the intestine has become freed from its putrid contents, which have much the same injurious effect upon the organism as the contents of a large putrid abscess, the vomiting subsides and the condition of the patient rapidly improves, and at a later period laparotomy and a radical operation can be carried out under much more favorable conditions. The affected bowel should be opened as near the point of obstruction as possible, for there its dilatation is the greatest, and the escape of gas and feces will most easily be accomplished. Moreover, by the opening as far as possible from the stomach, the nutrition of the patient will be better preserved.

There are other simpler measures which sometimes succeed and sometimes fail in reducing intussusception, such as injection of water or air thru the anus, thereby distending the rectum and colon. However, it has not been my intention to consider the treatment of any particular form of ileus in detail, but only to touch upon the most salient points of the subject and outline in a general way the most ordinary treatment.—*Medical Review of Reviews*

Editorial

PUBLISHER'S NOTICE—The Journal is published in monthly numbers of 48 pages at $1.00 a year, to be always paid in advance.

All bills for advertisements to be paid quarterly, after the first insertion of the quarter.

Business communications, remittances by mail, either by money order, draft, or registered letter, should be addressed to the Business manager, C. S. Briggs, M. D corner Summer and Union Streets, Nashville, Tenn.

All communications for the Journal, books for review, exchanges, etc., should be addressed to the Editor.

CONTROL OF PROSTITUTION.

The new Board of Commissioners of the City of Nashville have unanimously voted to close all houses of ill-fame in the city. We will anxiously watch the effect of this ordinance, since prostitution is very much like quicksilver, in that when mashed at one point it runs away in smaller masses to all points of the compass, but all units remain just the same. If matter is indestructible, prostitution is no less so. Whether accepted as a necessary evil or not, it will remain with us for some few centuries longer at any rate, and blessed will be the name of the man who can stop it, or even control it in such a manner as to cut down the incidence of venereal diseases.

Whether the Board of Commissioners are abolishing the segregated red-light district from purely moral reasons or from an earnest desire to limit the spread of venereal diseases we are not informed, but in either case we feel that it is a foregone conclusion that their purpose is defeated. Looking at the matter from a moral standpoint we can not help but feel that well controlled segregated vice is better than vice running wild, and if properly policed the segregated district should be free from some of the vices and crimes which now characterize it. Though segregation is theoretically wrong, it is nevertheless the best solution of this old-time problem.

Looking at the matter from the standpoint of disease prevention we are sure our list of venereal patients will increase, simply be-

cause the street walkers will increase and it is a well known fact that this type of prostitute carries and spreads disease even more than those who confine their activities to the brothel.

Unless the city provides a means of livelihood to these unfortunate girls, and this no city can do, then the city officials must allow them to walk the streets, or drive them out, and to send our refuse to other cities is certainly selfish and inconsiderate to say the least. To expect any great amount of reformation among these unfortunates is out of the question. Most of them are extremely ignorant and unfitted for work, even though it were offered them, and who is going to offer it? Who can offer it?

Of course many of the prostitutes will leave the city, but those who remain will walk the streets, will live about town, will frequent assignation houses and spread disease as heretofore, and the most efficient police system will be handicapped by the wider radius of their activities.

Prostitution is not a local or national question, it is international, and so far as we know there is no solution further than education in sexual matters. Many innocent girls land in the brothel through ignorance and not because of sin and it is this class of victims that sex education will protect. The vicious and degenerate are destined for a life of lewdness in spite of everything, and we can only control these by stringent laws and regulations. We hope our city officials will see their most sanguine hopes more than fulfilled, but we will remain pessimistic until there is more room for optimism than at the present writing. W. T. B.

Seize Substitute Species.

Cheap Imitations of Well Known Preparations Peddled to Drug Store Proprietors.

Washington, D. C. Several shipments of worthless imitation drug products have been seized by the officials in charge of the enforcement of the Food and Drugs Act. Itinerant peddlers are selling to drug stores large quantities of preparations made up and labeled in imitation of high priced patent medicines of foreign

origin. Only small quantities of the genuine medicines have been imported since the war began, causing a great increase in prices. Unscrupulous manufacturers are attempting to reap a harvest by substituting for the genuine medicines cheap chemicals with no medicinal value whatever. In order to make it difficult to trace these preparations to the parties responsible for their manufacture, they are not usually distributed through the regular channels of commerce, but are peddled about to drug stores by itinerants who make immediate delivery at the time of sale.

A preparation put up in imitation of "Neosalvarsan," a medicine which has largely displaced the preparation known as 606 in the treatment of syphilis, is being distributed to drug stores in this manner. A sample labeled "Neosalvarsan," which was recently examined by the Department, was found to be nothing more than salt colored with a coal tar dye, none of the genuine neosalvarsan whatever being present. The label on this product was an exact reproduction of the genuine imported neosalvarsan, or it was an original container refilled with the imitation articles.

This fraud is held to be particularly flagrant, according to the medical experts of the Department, not alone because a worthless preparation is sold for a high price, but mainly because neosalvarsan is usually administered by injection directly into the blood of the syphilitic patient. The cheap substitute is not only worthless in the treatment of this disease, but when injected directly into the blood might work considerable injury.

Other preparations which are peddled to druggists and purport to be acetylsalicylic acid, commonly known as aspirin, a medicine of foreign origin regularly prescribed by many physicians for certain ailments, have been seized by the officials in charge of the enforcement of the Food and Drugs Act, because an analysis showed that the products were worthless imitations.

Owing to the manner in which these preparations are peddled about, it is difficult to trace the interstate shipment of any of them, and in cases where there has been no interstate shipment the Federal Food and Drugs Act has no jurisdiction. On information furnished by the Federal authorities some of these imitation goods have been seized by city officials who had authority

under state laws to proceed when there had been no interstate shipment.

MIDDLE TENNESSEE MEDICAL ASSOCIATION.
Sparta, November 18, 19, 1915.

PUBLIC SESSION.
Thursday Evening, 7:30 o'clock.

We present the program of the meeting of the progressive and up-to-date Middle Tennessee Medical Association to show the character of work being done by this enthusiastic medical association. The meetings are always well attended and the papers and discussions full of interest. The meeting this year is held at Sparta, Tenn., and we feel sure the members will receive a hearty welcome and hospital entertainment from the physicians of that thriving little town in the mountains.

Presidents Address: "Something of Importance to the Public." Dr. F. O. Reagor.

Special Address: Dr. Olin West.

ESSAYS.

1. Spontaneous Fractures: Dr. L. W. Edwards, Nashville. To Discuss: Dr. Duncan Eve., Jr., Nashville; Dr. J. F. Gallagher, Nashville.
2. Diagnosis of Orthopedic Conditions: Dr. R. W. Billington, Nashville. To Discuss: Dr. Adam Nichol, Nashville; Dr. Howard Curtis, Hickman.
3. Accessory Sinuses of the Nose: Dr. E. B. Cayce, Nashville. To Discuss: Dr. A. F. Richards, Sparta; Dr. Hillard Wood, Nashville.
4. Subconjunctival Injection, Further Report: Dr. Geo. H. Price, Nashville. To Discuss: Dr. W. G. Kennon, Nashville; Dr. P. K. Lewis, Ravenscroft.
5. Laryngeal Diphtheria: Dr. Scott Farmer, Cookeville. To Discuss: Dr. Eugene Orr, Nashville; Dr. R. E. Lee Smith, Doyle.

6. Morphinism and Kidney Disease: Dr. John W. Stevens, City Veiw Sanitarium, Nashville. To Discuss: Dr. W. H. Witt, Nashville; Dr. B. F. Fyke, Springfield.
7. Conservative Surgery and Case Reports: Dr. A. H. Abernathy, Erin. To Discuss: Dr. R. A. Barr, Nashville; Dr. O. J. Porter, Columbia.
8. Direct Examination of Oesophagus as Aid to Diagnosis: Dr. Eugene Orr, Nashville. To Discuss: Dr. Wallace Wilkes, Columbia; Dr. E. B. Cayce, Nashville.
9. A Case of Spontaneous Rupture of the Aorta: Dr. A. A. Eggstein, Nashville. To Discuss: Dr. W. A. Oughterson, Nashville; Dr. W. T. Briggs, Jr., Nashville.
10. Alopecia: Dr. Harry Friedman, Nashville. To Discuss: Dr. J. M. King, Nashville; Dr. W. K. Sheddan, Columbia.
11. Syphilitic Osteoperiostitis, with X-Ray Presentation: Dr. Julius Haiman, Nashville. To Discuss: Dr. C. A. Anderson, Nashville; Dr. W. A. Bryan, Nashville.
12. Cancer of the Stomach: Dr. E. M. Sanders, Nashville. To Discuss: Dr. B. S. Rhea, Lebanon; Dr. R. A. Barr, Nashville.
13. Early Diagnosis of Cancer—Rectum and Sigmoid: Dr. D. R. Pickens, Nashville. To Discuss: Dr. Paul DeWitt, Nashville; Dr. T. A. Patrick, Fayetteville.
14. Functional Disturbances of the Stomach: Dr. O. N. Bryan, Nashville. To Discuss: Dr. J. H. Farrar, Hillsboro; Dr. J. A. Witherspoon, Nashville.
15. Acute Osteomyelitis: Dr. B. N. White, Murfreesboro. To Discuss: Dr. Mat Murfree, Murfreesboro; Dr. C. V. Stephenson, Centreville.
16. Treatment of Typhoid Fever: Dr. T. H. Wood, Bellbuckle. To Discuss: Dr. J. F. Bell, Bon Air; Dr. C. A. Forgey, Columbia.
17. Exstrophy of the Bladder: Dr. W. D. Haggard, Nashville. To Discuss: Dr. Perry Bromberg, Nashville; Dr. Dake Biddle, Columbia.

18. Treatment of Pneumonia: Dr. Joe Wright, Lynnville. To Discuss: Dr. J. O. Manier, Nashville; Dr. T. J. Coble, Shelbyville.
19. Tuberculosis—Its Prophylaxis: Dr. H. H. Shoulders, Nashville. To Discuss: Dr. C. A. Robertson, Ridgetop; Dr. O. N. Bryan, Nashville.
20. Treatment of Tuberculosis: Dr. G. E. Horton, Wartrace. To Discuss: Dr. R. S. Perry, Nashville; Dr. J. M. Oliver, Nashville.
21. Wassermann Test: Comparison of Results in Two Laboratories: Dr. R. L. Jones, Nashville. To Discuss, Dr. Herman Spitz, Nashville; Dr. Wm. Literer, Nashville.
22. Pellagra Survey, Nashville—Preliminary Report: Dr. Wm. F. Peterson, Vanderbilt University, Nashville. To discuss: Dr. W. J. Breeding, Ravenscroft; Dr. B. G. Tucker, Nashville.
23. Vaccines in Typhoid Fever—Dr. C. A. G. Sunstrong, Beech Grove. To discuss: Dr. Chas. W. Brown, Nashville; Dr. A. L. Lear, Sewanee.
24. Prostatectomy—Dr. C. F. Anderson, Nashville. To discuss: Dr. W. C. Dixon, Nashville; Dr. W. D. Haggard, Nashville.
25. Pulmonary Features of Heart Disease—Dr. W. H. Witt, Nashville. To discuss: Dr. A. A. Eggstein, Nashville; Dr. G. W. Moody, Shelbyville.
26. Goiter—Dr. H. M. Tigert, Nashville. To discuss: Dr. C. A. Abernathy, Pulaski; Dr. Geo. C. Williamson, Nashville.

ASSISTANT IN METABOLISM INVESTIGATIONS (MALE), $1,500.
December 8, 1915.

The United States Civil Service Commission announces an open competitive examination for assistant in metabolism investigations, for men only, on December 8, 1915, at the places mentioned in the list printed hereon. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the United States Public Health Service for duty in

the field at a salary of $1,500 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to make complete food analyses, including calorimetric determinations. Appointees will also be required to use the respiration apparatus for the determination of the energy metabolism.

Competitors will be examined in the following subjects, which will have the relative weights indicated:

Subjects	Weights
1. General chemistry	25
2. Calorimetric and respiration determinations	40
3. Education and experience	35
Total	100

Graduation from a four years' course at a college, university, or medical school of recognized standing and at least six months' practical experience in work with the respiration apparatus and the calorimeter are prerequisites for consideration for this position.

Statements as to education and experience are accepted subject to verification.

Applicants must not have reached their forty-fifth birthday on the date of the examination.

Applicants must submit to the examiner on the day of the examination their photographs, taken within two years, securely pasted in the space provided on the admission cards sent them after their applications are filed. Tintypes or proofs will not be accepted.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Form 1312, stating the title of the examination for which the form is desired, to the United States Civil Service Commission, Washington, D. C., or to the Secretary of the United States Civil Service Board at any place mentioned in the list hereon. Applications should be properly executed, ex-

cluding the medical and county officer's certificates, and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant. The exact title of the examination as given at the head of this announcement should be stated in the application form.

Issued November 3, 1915.

NEW YORK SKIN AND CANCER HOSPITAL.
Second Avenue, Cor. 19th St.

The Governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley, assisted by the attending staff, will give a seventeen series of Clinical Lectures on Diseases of the Skin in the Out-patient Hall of the Hospital on Wednesday afternoons, beginning November 3, 1915, at 4:15 o'clock. The lectures will be free to the medical profession, on the presentation of their professional cards.

FREDERICK HAAS,
Chairman of Executive Committee.

THE AMERICAN SOCIETY FOR THE STUDY OF ALCOHOL AND OTHER NARCOTICS.

will hold its forty-fifth annual meeting at Washington, D. C., December 15 and 16, 1915.

This was the first society of medical men in the world to take up the scientific study of alcohol and other narcotics. Its papers and transactions have been published in the Journal of Inebriety, and comprise the first scientific literature on this subject.

Thirty-one papers on different phases of the subject will be read at this meeting by specialists and distinguished medical and scientific men. These studies will be confined exclusively to the facts and conclusions from laboratory observations and clinical experience.

The public are cordially invited to be present. Programs can be had by addressing the Secreaary, Dr. T. D. Crothers, Hartford, Connecticut.

Public Health Service Discovers Cause and Cure of Pellagra. Pellagra Caused by Insufficient Proteid Diet.

Announcement was made at the Treasury Department today that as a result of continued research and experiments of the Public Health Service, both the cause and cure of pellagra have been discovered, and that the spread of this dread malady, which has been increasing in the United States at a terrific rate during the past few years, may now be checked and eventually eradicated. Assistant Secretary Newton, in charge of the Public Health Service, expressed great interest in the discovery and regards it as one of the most important achievements of medical science in recent years.

Pellegra has been increasing alarmingly throughout the United States during the last eight years, and it is estimated that 75,000 cases of the disease will have occurred in the United States in 1915, and of this number at least 7,500 will have died before the end of the year. In many sections only tuberculosis and pneumonia exceed it as a cause of death.

The final epoch-making experiment of the Public Health Service was carried out at the farm of the Mississippi State Penitentiary about eight miles east of Jackson, Miss., and together with the previous work of the Service completes the chain in the prevention and cure of the disease. The work at the Mississippi Farm has been in charge of Surgeon Joseph Goldberger and Assistant Surgeon G. A. Wheeler of the United States Public Health Service. The farm consists of 3200 acres in the center of which is the convict camp. The final experiment was undertaken for the purpose of testing the possibility of producing pellagra in healthy human white adult males by a restricted, one-sided, mainly carbohydrate (cereal) diet. Of eleven convicts who volunteered for this experiment, six developed a typical dermatitis and mild nervous gastro-intestinal symptoms.

Experts, including Dr. E. H. Galloway, the Secretary of the Mississippi State Board of Health, Dr. Nolan Stewart, formerly Superintendent of the Mississippi State Hospital for the Insane

at Jackson, Dr. Marcus Hause, Professor of Dermatology, Medical College of the University of Tennessee, Memphis, Tenn., and Dr. Martin R. Engman, Professor of Dermatology in the Washington Medical School, St. Louis, Mo., declare that the disease which was produced was true pellagra.

Prior to the commencement of these experiments no history could be found of the occurrence of pellagra on the penitentiary farm. On this farm are 75 or 80 convicts. Governor Earl Brewer offered to pardon twelve of the convicts who would volunteer for the experiment. They were assured that they would receive proper care throughout the experiment, and treatment should it be necessary. The diet given was bountiful and more than sufficient to sustain life. It differed from that given the other convicts merely in the absence of meats, milk, eggs, beans, peas and similar proteid foods. In every other particular the convicts selected for the experiment were treated exactly as were the remaining convicts. They had the same routine work and discipline, the same periods of recreation and the same water to drink. Their quarters were better than those of the other convicts. The diet given them consisted of biscuits, fried mush, grits and brown gravy, syrup, cornbread, cabbage, sweet potatoes, rice, collards and coffee with sugar. All components of the dietary were of the best quality and were properly cooked. As a preliminary, and to determine if the convicts were afflicted with any other disease, they were kept under observation from February 4th to April 9th, two and a half months, on which date the one-sided diet was begun.

Although the occurrence of nervous symptoms and gastro-intestinal disturbances was noted early, it was not until September 12th, or about five months after the beginning of the restricted diet, that the skin symptoms so characteristic of pellagra began to develop. These symptoms are considered as typical, every precaution being taken to make sure that they were not caused by any other disease. The convicts upon whom the experiment was being made, as well as twenty other convicts who were selected as controls, were kept under continuous medical surveillance. No cases of pellagra developed in camp excepting among those men who

were on the restricted diet. The experimenters have, therefore, drawn the conclusion that pellagra has been caused in at least six of the eleven volunteers as a result of the one-sided diet on which they subsisted.

On the basis of this discovery the states of Mississippi, Louisiana and Florida have laid their propaganda through their respective boards of health for the eradication of the disease.

Honor to Distinguished Southern Physician.

At the forty-sixth annual meeting of the American Medical Association, which was held at the Hotel McAlpin in New York City, October 18-19, Dr. Edward C. Register, of Charlotte, N. C., editor of the Charlotte Medical Journal, was elected president; Dr. W. A. Jones, of Minneapolis, first vice president; Dr. G. M. Piersol, of Philadelphia, second vice president, and J. MacDonald, Jr., of New York, secretary and treasurer. The meeting was attended by 115 editors, and the transactions were made up of excellent papers and spirited discussions. The gathering was terminated with a magnificent banquet, which made a fitting close to a notable meeting. Our congratulations are extended to the newly elected president, Dr. Edward C. Register, upon the high honor conferred upon him by the association, and to the association upon its wisdom in selecting for such an honor one so well fitted to grace and dignify the presidential chair of that august body.

Reviews and Book Notices

"Progressive Medicine"—A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson Medical College, Philadelphia; Physician to the Jefferson Medical College Hospital; one Time Clinical Professor of Diseases of Children in the University of Pennsylvania; Member of the Association of American Physicians, etc. Assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College; Ophthalmologist to the Frederick Douglass Memorial Hospital; Instructor in Ophthalmology, Philadelphia Polyclinic Hospital and College for Graduates in Medicine. Vol. III. September, 1915. Diseases of the Thorax and Its Viscera, Including the Heart, Lungs and Blood Vessels—Dermatology and Syphilis—Obstetrics—Diseases of the Nervous system—Index.

Our thanks are due the publishers for this very interesting number of a very valuable quarterly. The practitioner who is a subscriber to this publication supplies himself with a repository of the most advanced medical and surgical literature, for it represents the valuable information threshed out from the entire mass of contributions to the science of medicine and surgery. The following is the contents of Volume III, with the names of the authors to each article: "Diseases of the Thorax and Its Viscera, Including the Heart," Lungs and Blood Vessels," by Wm. Evart, M. D., F. R. C. P.; "Dermatology and Syphilis," by William S. Gottheil, M. D.; "Obstetrics," by Edward P. Davis, M. D.; "Diseases of the Nervous System," by William G. Spiller, M.D.; "Index." These subjects are all brought up fully abreast with the most recent advances and are treated by the contributors in a masterly and scientific manner. As a source of most valuable recent information this quarterly is without a peer in the domain of medical literature.

"Students' Textbook of Hygiene"—By W. James Wilson, M. D., D. Sc., D. P. H. Bacteriologist to the counties of Down and Antrim, Lecturer in Hygiene and Public Health, Queen's University, Belfast. New York. Rebman Co., Herald Square Building, 141-145 West 36th St.

This should prove a useful handbook to every student of medicine, as it deals in a plain and concise way with hygienic facts that should be familiar to every one who is to take up the practice

of medicine. The book is based on a course of lectures given by the author to the hygienic class in the Queens University, Belfast. It is written chiefly to meet the requirements of the student body, but will certainly prove of much value to teachers, sanitary inspectors, health officers and all interested in public health. The work is presented in carefully prepared form, admirably calculated to prepare the student for his conduct of patients entrusted to his care in the practice of medicine.

"The Mechanism of Immunization"—By Henry Smith Williams, M.D., and James Wallace Beverege, M.D., New York City. Copyright, 1915. Reprinted from American Medicine, October and November, 1914. Nos. 10 and 11. Vol. XX, Complete Series. Nos. 10 and 11, Vol. IX, New Series.

We acknowledge with thanks to the distinguished authors the receipt of a copy of this very handsome and scientific monograph on a subject that should be of the greatest attraction in this day of investigation of pathological conditions. The thesis of the monograph is put forward thus by the author, "That the mechanism which gives the human organism partial or complete immunity against bacterial disease comprises what may be called the cytogenic system—including lymphatics, bone marrow and spleen—with its daughter cells the white and red corpuscles as its active agents, and with the liver as the excretory organ of the waste products incidental to the immunizing process." The value of the researches of these authors as presented in this brochure is unquestionable.

Publisher's Department

IS IT WORTH WHILE?

Is paraffin oil worth while in the treatment of obstipation, stasis, autotoxemia?

No, it is not—*unless* three important things are understood and followed:

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2. The right method of administration.
3. The right dosage.

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There is but one answer—it is.

Because in the first place, "Interol" is an ultra-refined, ultra-purified mineral oil. "Interol" is mineral oil and nothing else. That is to say, by insistance upon ultra-refining processes, "Interol" has been carried beyond the point of possible contamination by impurities, such as sulphur compounds and lighter (unsaturated) hydro-carbons. This is of the greatest importance, because such impurities may increase nausea, flatulence, eructations—or irritate the kidneys.

"Interol" is therefore a mineral oil that is the best *that can be made;* not the best that can be obtained or the best procurable, but the best that can be made.

Mark the difference—and realize the distinction that "Interol" deserves!

Not only pure in fact as well as claim, "Interol" is of proper body, correct viscosity, free from suggestion of flavor or odor, even when heated to 100 degrees C. and will be taken by the most fastidious person.

But even "Interol" may give indifferent results if given haphazard. A dose of ℥ss. twice daily may "get lost" in some individuals. In other cases ℥ii. daily supplies all necessary lubrication.

To start with, give an initial dose of ℥iss. or perhaps ℥ij. at

night upon retiring. Then ℥ss. morning and night for three or four days. It requires as a rule from two to five days for "Interol" to begin to produce recognizable effect. After it has begun to act, reduce the dose slightly at first. If it has not begun to act, increase the dose. Try the use of a large dose ℥i. once a day or every other day. Or try divided doses, say ℥ii. t. i. d. In this way "the individual dose" can be found. Then apply the individual dose so as to secure one or two easy movements daily.

Bear in mind, "Interol" is a lubricant and an artificial one. Hence its greatest value is to train the bowels to act naturally. Try a gradual reduction in size of the dose, then omit the daily dose, watching the results. Then stop the taking of "Interol" altogether, say for a week. If necessary, resume its use and taper off the dose.

Convalescence.

After a long and serious illness the functional activity of the digestive tract is always depressed and as a consequence, during convalescence no line of treatment is more urgently required or more positive in its benefits than measures capable of promoting the physiologic efficiency of the digestive organs. Tonics are more or less serviceable, but inasmuch as the profession have in Seng a true digestive secernent, this remedy is the one generally turned to by physicians who are familiar with its exceptional therapeutic value. Under its systematic use the secretory glands of the stomach are gradually restored to their normal activity, and as this takes place, the nutrition of the whole body naturally shows a corresponding improvement. Since convalescence and a return to perfect health are always largely dependent on the restoration of the nutritional equilibrium, it can readily be seen how useful Seng is following an acute illness. Certainly no medical man who has ever tried this effective remedy in the treatment of some weak debilitated patient and observed the response which the digestive functions make to its tonic influence, will deny to similar patients the benefits he knows it will give.

For the Liver Patient.

For those patients who come to us with sallow complexions, chronic indigestion, and that whole train of autotoxic symptoms generally grouped under the term "biliousness," there is one remedy that immediately suggests itself to those who are familiar with its virtues. That remedy is Chionia. Made from one of the older drugs that time and clinical experience have shown to possess cholagogue powers of a very definite and positive character, Chionia is invaluable in the treatment of these cases that we are prone to speak of as "liver patients." The livers of these people are inactive, their portal circulations are sluggish, and their systems are overloaded with toxic products that have not been thrown off as they are by those in whom the excretory functions of the liver are normally active.

Many of these patients have sought relief from the use of cathartics, laxatives, etc. For a time, these measures have seemed effective. But only temporarily, for real hepatic stimulation is seldom thus afforded. A true liver stimulant is needed, and this is why Chionia gives such satisfactory results, for its main, and to a certain extent, specific action is to increase the functional activity of the liver. Chionia can be relied upon, therefore, to correct these conditions due to liver torpor, and happily, without giving rise to catharsis or upsetting and exhausting the patient in the way that other cholagogues will. In view of the efficiency of Chionia it can easily be understood why so many successful practitioners look upon it as a *"sine qua non"* in the treatment of those who are afflicted with sluggish livers.

Pepsin is undoubtedly one of the most valuable digestive agents of our materia medica, provided a good article is used. "Robinson's Lime Juice and Pepsin" (see page —— this number) we can recommend as possessing merit of high order.

The fact that the manufacturers of this palatable preparation use the purest and best Pepsin, and that every lot made by them is carefully tested before offering for sale, is a guarantee to the

physician that he will certainly obtain the good results he expects from Pepsin.

"For a lady patient, very nervous, with a constipated tendency and some kidney trouble, who had a severe attack of rheumatism, I prescribed Tongaline Liquid and Tongaline and Lithia Tablets, with the result that she was thoroughly relieved."

A Pennsylvania physician reports: "For a patient with a swelling of the knee, rheumatic in character and an exaggerated flexion which had existed for five months, I prescribed Tongaline with marked improvement."

A Wisconsin physician reports: "For thirty years I have constantly prescribed Tongaline with successful results and have found it most beneficial for all rheumatic and gouty conditions, as also a powerful tonic and eliminant. While there may be many so-called imitations of Tongaline, there is none which approaches it in therapeutic efficacy."

The Test of Time.

In Glyco-Thymoline I have found a preparation upon which the body medical has placed the seal of approval and one calculated to meet the requirements of the medical practician's varied needs. The preparation is too well known by reason of its world-wide (I use this term advisedly) use, to necessitate or warrant a description or analysis here, nor do I propose to speak for others beside myself. It is, however, a pleasure to state that for the past eight years I have used this preparation to the exclusion of all others in my work at the clinic and in private practice whenever I wanted a mild cleansing antiseptic detergent remedy. During the period of time I have a large number of cases on record which I could detail would space permit, but I must desist and limit myself to a few which I will offer to show why I con-

fine myself to this single remedy and leave it to the reader to determine the value of my judgment.

Mr. G. C. H., age 37, traveling salesman, consulted me in reference to his "catarrh," which had given him much discomfort for some time. Complained of frequent attacks of headache, occasional sore throat and incidentally mentioned the fact that his sense of smell was failing him. I examined his nose carefully and found him in the first stage of beginning atrophic rhinitis. The tissues looked dry and drawn, there were some crusts which were very adherent and had some odor. When detached, which was with difficult, the mucous membrane showed a tendency to bleed. I spent some time in rendering the affected parts perfectly clean, warmed to proper temperature. He was further instructed in the use of the K. and O. Nasal Douche which he continued to use daily. I gave him general instructions as to his habits, diet, way of living, and he left me. Saw him several months later while passing through the city and he came up to the office and I looked him over again. To my great surprise the atrophy had been unmistakably arrested in its progress, his throat was normal, he not being obliged to hawk so incessantly any more and his sense of smell had returned completely. Here is a case which was entirely restored by the conscientious and diligent use of Glyco-Thymoline.

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Hypophosphites	Soda - - - -	2 grains
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"	Iron - - - -	1½ "
"	Quinine - -	¾ "
"	Manganese -	1½ "
"	Strychnine -	1-16 "

DOSE—One to four fluidrachms.

6 oz. Bottles, 50 Cents.
Pint Bottles, $1.00.

This preparation does not precipitate—retains all the salts in perfect solution.

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Pure Concentrated Pepsin combined with Pure Lime Juice.

An exceedingly valuable Combination in cases of Dyspepsia, Indigestion, Biliousness, Heartburn and Mal-Assimilation.

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Reliable Pepsin is one of the best DIGESTIVE agents known. **Pure Lime Juice** with its APERIENT and CHOLAGOGUE characteristics with the Pepsin furnishes a compatible and most efficient combination as a remedy for the disorders named.

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DOSE—Adult, dessertspoonful to tablespoonful, after eating. Children one-half to one teaspoonful, according to age.

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Powder in 1-oz. vials, dose 10 grains, 4 times daily (under physicians prescriptions), per 100 $1.25.

Tablets, 5 grains, to a bottle, dose, 2 tablets 4 times daily (under physicians prescriptions); per 100, $1.25.

Elixir, in 16 ounce bottles, dose, teasponful after each meal and at bedtime (under physicians' prescriptions), per bottle $2.00.

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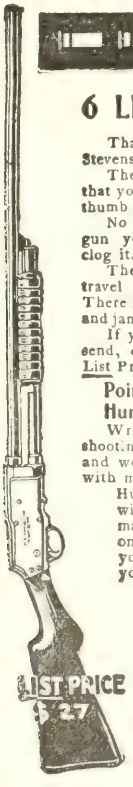

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The empty and the loaded shells travel by **two separate routes.** There is no chance for them to meet and jam.

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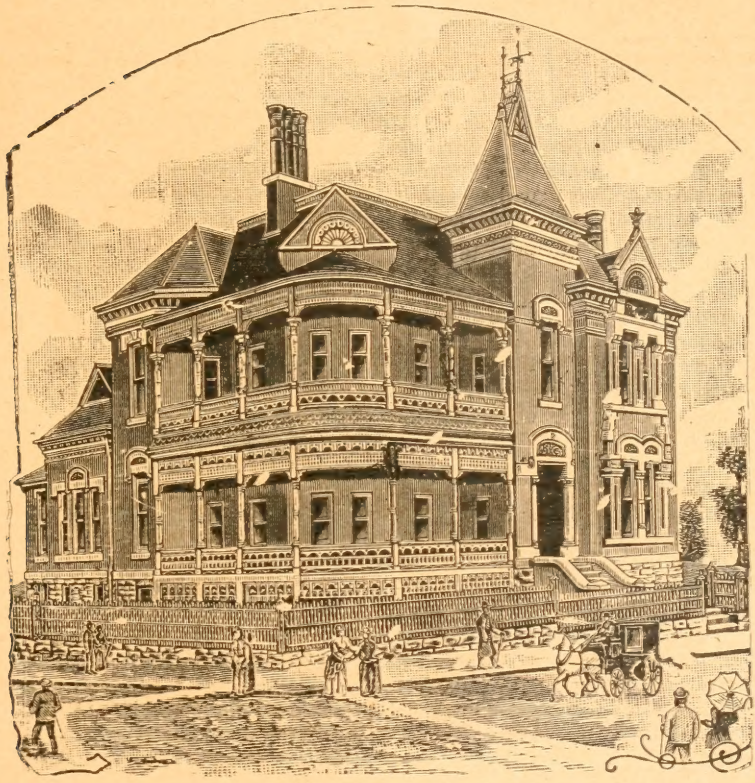

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